

Operating and maintenance instructions

ECO.*pump*

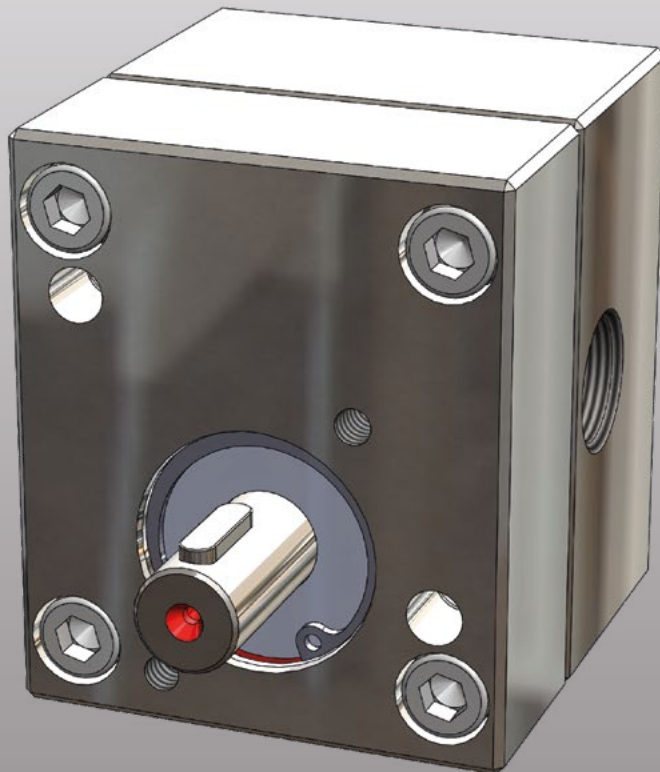


TABLE OF CONTENTS

	Page
1. Important information and legal notices	3
2. General information	4
2.1 Details of the pump type	4
2.2 Technical specifications	4
2.3 Permissible use.	4
3. Safety and warning signs	5
4. 2. General safety instructions	6
4.1 Safety instructions for operators/users	6
4.2 Safety instructions for maintenance / inspection and assembly work	7
4.3 Unauthorized operating modes	7
5. Structural design	7
6. Commissioning – Preparation work.	8
7. Commissioning – In General.	8
7.1 Installation position	8
7.2 Direction of rotation	8
7.3 Connections	8
7.4 Temperature	8
8. Storage, return and disposal	9
9. Maintenance, service life and warranty	10
10. Disassembly and reassembly	10
10.1 Basic regulations	10
10.2 Disassembly of the pump	11
10.3 Cleaning	11
10.4 Assembly	11
10.5 Shaft seal disassembly.	12
10.6 Assembly	12
11. Spare parts	13
12. Related documents	13
13. Model code.	13
14. Certificate of non-objection	14

1. IMPORTANT INFORMATION AND LEGAL NOTICES

Dear customer, dear user,

These operating instructions for the "ECO.pump" external gear pumps from Beinlich Pumpen GmbH (Beinlich) contain information required to properly install and commission the pump for its intended purpose.

Any installation, commissioning, operation, maintenance and testing may only be carried out by trained and authorized personnel. The operating instructions must be read carefully and followed in detail to ensure trouble-free, proper and safe operation of the pump. In particular, the safety instructions must be observed.

These operating instructions must be kept in a place where they can be viewed by authorised personnel at all times. The contents of the operating instructions must not be removed at any time. Missing operating instructions or missing pages must be replaced immediately if lost. The operating instructions can be requested from Beinlich or downloaded from our website www.beinlich-pumps.com at any time. The operating instructions must be passed on to any subsequent user of the pump.

These operating instructions are not subject to any modification service by Beinlich. Beinlich reserves the right to make technical changes at any time without notice.

Beinlich makes no warranties, express or implied, with respect to commercial qualities and suitability for a particular purpose.

Beinlich accepts no liability for damage and malfunctions resulting from operating errors, failure to observe these operating instructions, improper installation, commissioning or maintenance as well as improper use of the pump.

Opening the pump is generally not permitted. If the pump is opened or modified without authorization, or after a single incorrect connection, Beinlich's warranty and product liability will expire.

The publication of these operating and maintenance instructions renders all information from previous publications invalid. Beinlich reserves the right to make modifications and differences. Beinlich accepts no liability for possible printing errors. Reproduction, even in excerpt form, is permitted only following written consent from Beinlich. Beinlich reserves the right to make technical modifications at any time. Last updated: 02/2024

2. GENERAL INFORMATION

These operating instructions form part of the delivery and must be read before working with the pump. Compliance with the instructions in these operating instructions is mandatory. Store these operating instructions near the pump.

NOTE

No liability will be accepted for damages or malfunctions resulting from non-compliance with these operating instructions. In the context of continued development, Beinlich Pumpen GmbH reserves the right to make changes to the individual components or assemblies that are deemed to make sense for the improvement of the product while maintaining the main characteristics.

2.1 Details of the pump type

For a complete type description, refer to the technical specifications or the order confirmation. The serial number consists of the order number and a sequential

serial number (e.g. 16/0000-00). It is affixed to the type plate or directly to the pump.

2.2 Technical specifications

The technical specifications are part of our order confirmation and include all important technical details that were agreed to by the purchaser and the manufacturer.

2.3 Permissible use

The pump/pump assembly is exclusively designed for the permissible use that is listed in the technical specifications of our order confirmation. We recommend

checking the compatibility of the material with the medium. Deviating operating conditions require new contractual agreements.

3. SAFETY AND WARNING SIGNS

You must comply with all safety warnings in the operating instructions that are identified as followed:



Warning of mechanical hazard



Read the operating instructions /
comply with regulations



Warning of hot surface



Enable



Warning of hazardous electric voltage



Secure



Important information for safe and
fault-free operation



Information, tips

4. GENERAL SAFETY INSTRUCTIONS

Every delivery must be checked for any damage sustained during transport immediately after it is received. Commissioning may need to be cancelled. The customer is responsible for the correct set-up of the pump.

Confirmed properties of the pump require compliance with the information in these operating instructions. Ensure that you never use damaged products.

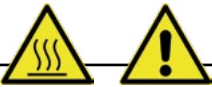
Read the operating instructions carefully before starting any set-up, assembly or maintenance work. Assembly, connection, commissioning and maintenance or repair work must only be carried out by suitably qualified professionals taking account of

- These instructions;
- All other project management documentation, commissioning instructions and circuit diagrams pertaining to the drive;
- National and regional regulations currently in force governing safety and accident prevention.



**Assembly and maintenance work must only be carried out with the drive stationary!
The unit must be isolated and secured to prevent accidental start-up.**

4.1 Safety instructions for the user/operator



If hot or cold machine parts present a hazard, these parts must be secured against being touched during installation.



Contact protection for moving parts, such as the coupling, must not be removed when the machine is in operation.



Leakage (e.g. the shaft seal) of hazardous materials (e.g. explosive, toxic, hot) must be dealt with and disposed of so that neither people nor the environment are endangered. Legal obligations are to be complied with.



Hazards caused by electrical energy must be eliminated in all instances. (For details of these, see the regulations provided by the VDE, for example, and the energy supply companies). Electrical connections must be installed by trained personnel.



Opening of the pump during the warranty period is only permitted following consultation with and approval from Beinlich Pumpen GmbH!

4.2 Safety instructions for maintenance / inspection and assembly work

The operator must make ensure that all maintenance, inspection and assembly work is exclusively performed by authorized qualified specially trained personnel who are sufficiently informed after carefully studying the operating instructions.

Any work on the pump must be performed when the pump is at standstill.

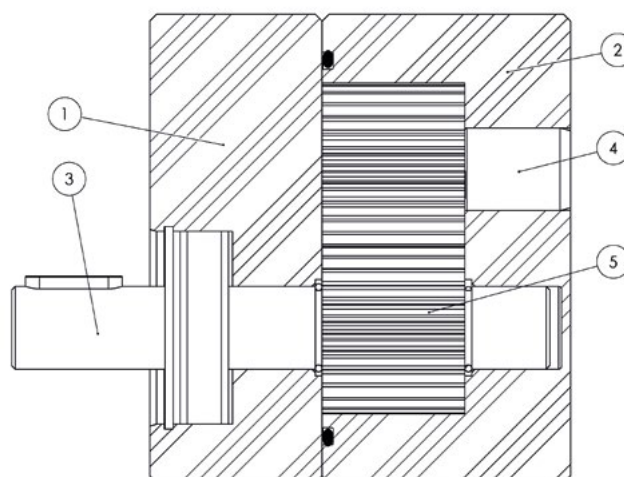
Adherence to the procedures that are described in the operating instructions for stopping the machine is imperative. Pumps and pump assemblies that convey media that pose a health risk must be decontaminated. All safety and protective equipment must be reinstalled and activated immediately following the completion of the work. All items listed in the "Commissioning" section must be observed prior to restart.

4.3 Unauthorized operating modes

The operational safety of the machine that was delivered is only warranted with intended use according to Section 1 "General notes" of these operating instructions. Any exceedance or shortfall of the specified limit values in the technical specification must be prevented under any circumstances.

5. STRUCTURAL DESIGN

The pump consists of a front plate (1), combined plate (2), drive shaft (3), pin (4) and gears (5). The suction and pressure connections are designed as BSP inner threads.



6. COMMISSIONING – PREPARATION WORK

The pump must only be commissioned when:

- The information of the technical specifications in the order confirmation matches the information in the use conditions.
- There is no visible damage, such as due to storage or transport.
- Sealing caps and protective covers are not damaged.
- There are no visible leaks.
- There is no corrosion or any other indication of improper or damp storage.
- All packaging material was removed without remnants.

7. COMMISSIONING – IN GENERAL

7.1 Installation position

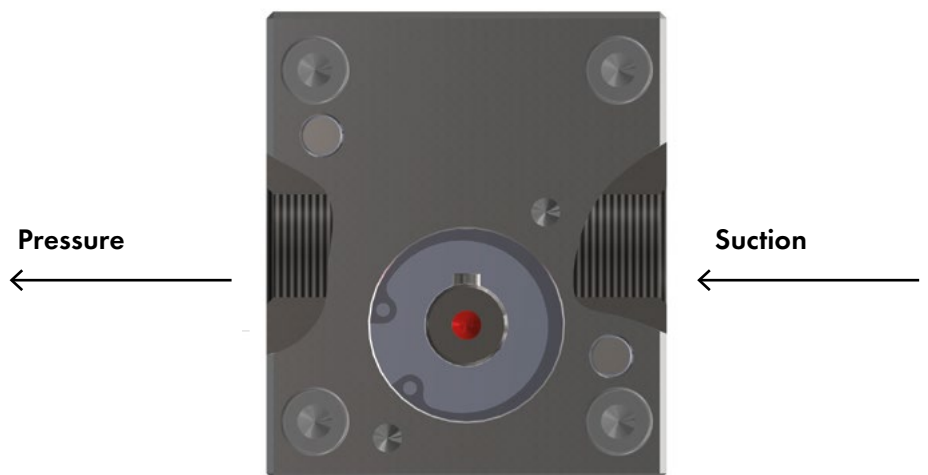
any

7.2 Direction of rotation

Standard direction of rotation
clockwise (CW)

7.3 Connections

0.15 cm ³ – 2.40 cm ³	G 1/4
3.00 cm ³	G 3/8
4.80 cm ³ – 6.00 cm ³	G 1/2



The use of sealing materials such as hemp or putty is prohibited due to a risk of contamination!

7.4 Temperature

The minimum and maximum temperature is contingent upon the sealing material! Observe a possible change of viscosity of the medium when the temperature changes. Reference the technical specifications.

8. STORAGE, RETURN AND DISPOSAL

Storage

All Beinlich pumps are supplied with sealing plugs and in suitable packaging for all destinations and modes of transport to ensure optimum protection. The pumps should always be stored in their original packaging. The units must not be exposed to temperatures below -20°C or above $+60^{\circ}\text{C}$ and must be protected from moisture and its effects.

Return

1. Only cleaned, medium-free pumps can be accepted by Beinlich Pumpen for maintenance or repair. The pump must therefore be properly cleaned by the customer before being returned to prevent the risk of poisoning/contamination by harmful, explosive and other high-risk pumped media for humans and the environment.
2. If media have been conveyed whose residues with atmospheric humidity lead to corrosion damage or ignite on contact with oxygen, the pump must be additionally neutralised and thoroughly cleaned with anhydrous, inert gas to dry.
3. The return of the pump must always be accompanied by a fully completed declaration of non-objection (see section 14, page 14). All applied safety and decontamination measures must be indicated. Pumps for which this safety certificate has not been completed and signed cannot be inspected or repaired for safety reasons and will be returned uninspected at your expense. The declaration of no objection can be requested from Beinlich Pumpen or downloaded from our website.
4. When returning the pump, it must be packed in accordance with the applicable logistics standards and sealed with sealing plugs.

Disposal

Beinlich actively promotes environmental protection and is certified according to DIN EN ISO 14001 (Environmental Management). The impact on the environment and people should be minimised during the production, storage, transport, use and disposal of our products and solutions.

- Collect rinsing liquid as well as residual liquid and dispose of it in accordance with the statutory provisions and regulations.
- Wear protective clothing and protective mask/+ goggles if necessary.

Materials must be disposed of properly as follows:

- Metal
- Plastics
- Grease and lubricants
- Electronic components
- etc.

When disposing of the materials, ensure that the waste-relevant rules and regulations of the respective country of destination are observed!

9. MAINTENANCE, SERVICE LIFE AND WARRANTY

Beinlich gear pumps are maintenance free under standard conditions. A continuous control of the technical parameters is recommended. The use of corresponding control equipment like working hour counter, pressure and temperature switches, etc. should be done in relation to general regulations.

During maintenance on the unit please consider the following:

- Check all fastening screws and connections to ensure they are securely tightened and re-tighten if necessary.
- Control the alignment of the coupling. Check elastomers for wear.
- Control the tightness of the pump, especially the shaft seal.

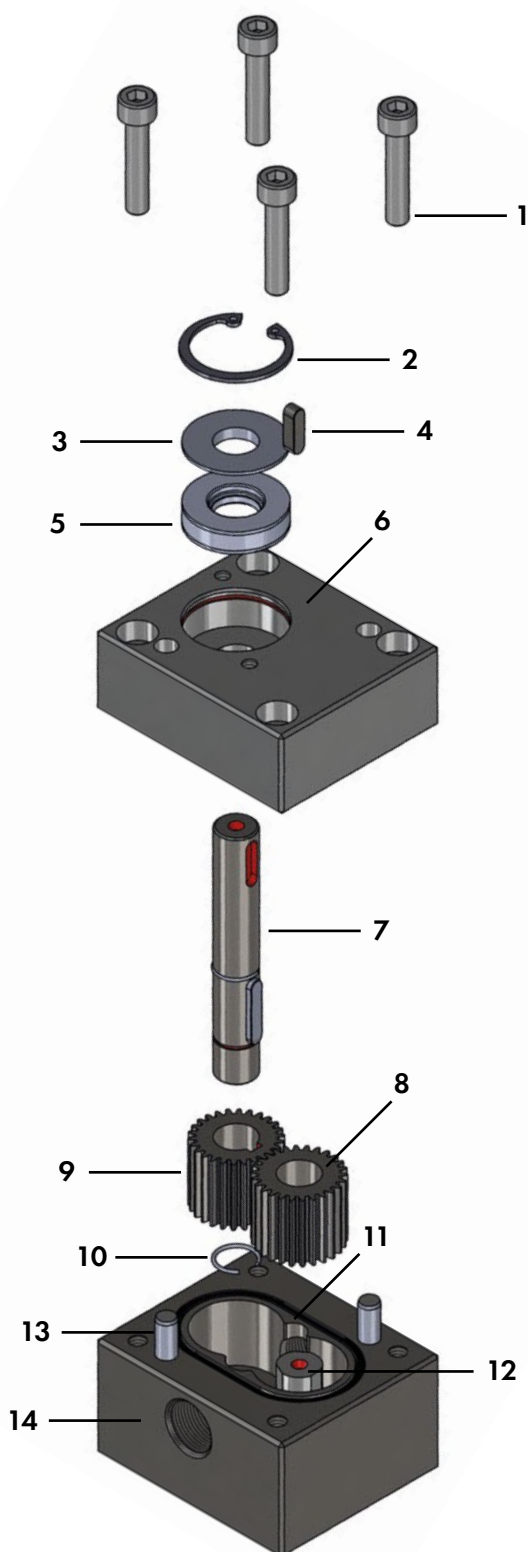
Depending on the operating conditions, the service life and therefore the specific properties of the pumps are limited by wear, corrosion, deposits or ageing. The operator is responsible for regular inspection, maintenance and recalibration. Any observation of a malfunction or damage prohibits further use. On request, we can provide you with a loan unit for the duration of the overhaul. We recommend an annual check and recalibration. Under normal operating conditions, the service life is 10,000 hours. The warranty period is 12 months.

10. DISASSEMBLY AND REASSEMBLY

10.1 Basic regulations



The unit must be secured to prevent reactivation before commencing disassembly work. The shut-off devices in the supply line must be closed. The pump must be at the ambient temperature.



10.2 Disassembly of the pump

- 10.2.1 Pull the key (4) off the shaft
- 10.2.2 Unscrew the 4 cylinder bolts M6 (1)
- 10.2.3 Carefully remove the front plate (6)
- 10.2.4 Pull the drive shaft with gear out (7, 9, 10)
- 10.2.5 Pull the driven gear out (8)
- 10.2.6 Remove the circlip (10)
- 10.2.7 Pull the gear off the shaft

Note

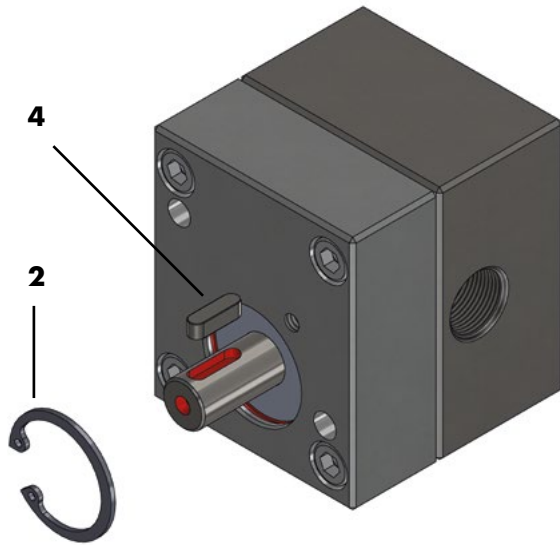
The pin (12) is pressed into the combined plate (14) and cannot be removed.

10.3 Cleaning

- 10.3.1 Use only suitable cleaning agents.
Do not use abrasive media.
- 10.3.2 Remove the O-ring (11) and replace it after cleaning.
- 10.3.3 The pump must be dried and then lubricated with liquid, that does not react with the medium to be conveyed.

10.4 Assembly

- 10.4.1 Align pins (13) in the combined plate (14).
- 10.4.2 Slide the gear (8) onto the pin (12).
- 10.4.3 Slide the gear (9) onto the drive shaft (7) and secure it with a circlip (10).
- 10.4.4 Make sure that the O-ring (11) is correctly fitted in the groove.
- 10.4.5 Carefully mount the front plate on the combined plate. The bearing position in the front plate centres the shaft for the radial shaft seal.
- 10.4.6 Insert the cylinder bolts (1).
Tighten the bolts step-by-step in a cross-diagonal pattern to 15 Nm

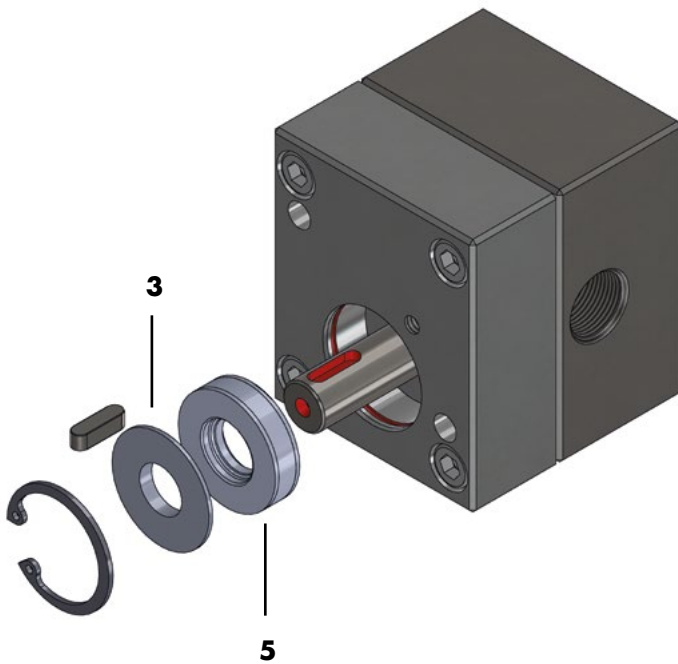


Note

The front plate must be disassembled to remove the radial shaft seal. See Disassembly Instructions (10.2.1 – 10.2.3)

10.5 Shaft seal disassembly

- 10.5.1 Remove the key (4)
- 10.5.2 Remove the locking ring (2)
- 10.5.3 Remove the front plate
(see Disassembly 10.2.1 – 10.2.3)
- 10.5.4 Remove the support ring (3) (does not apply to PTFE version) and remove the radial shaft seal (5)



10.6 Assembly

- 10.6.1 Press the radial shaft seal and the support ring into the front plate to the shaft seal below the groove for the locking ring.
- 10.6.2 Fit the locking ring in the groove
- 10.6.3 Carefully mount the front plate on the combined plate. The bearing position in the front plate centres the shaft for the radial shaft seal.
- 10.6.3 The aligning pins centre the front plate on the combined plate.
- 10.6.4 Insert the cylinder bolts (1)
Tighten the bolts step-by-step in a cross-diagonal pattern to 15 Nm

Note

The drive shaft should be rotated manually while tightening the bolts.

11. SPARE PARTS

Provide the following information to place orders for spare parts:

- Order No.
- Item no. of the pump
- Part no. according to the parts list
- Quantity

Maintaining a supply of the most important spare parts and wear parts at the installation location is an important requirement for the operational readiness of the pump. As an alternative, we recommend maintaining a standby pump on site and send the disassembled pump to our plant for repairs as needed. Our parts list with section-

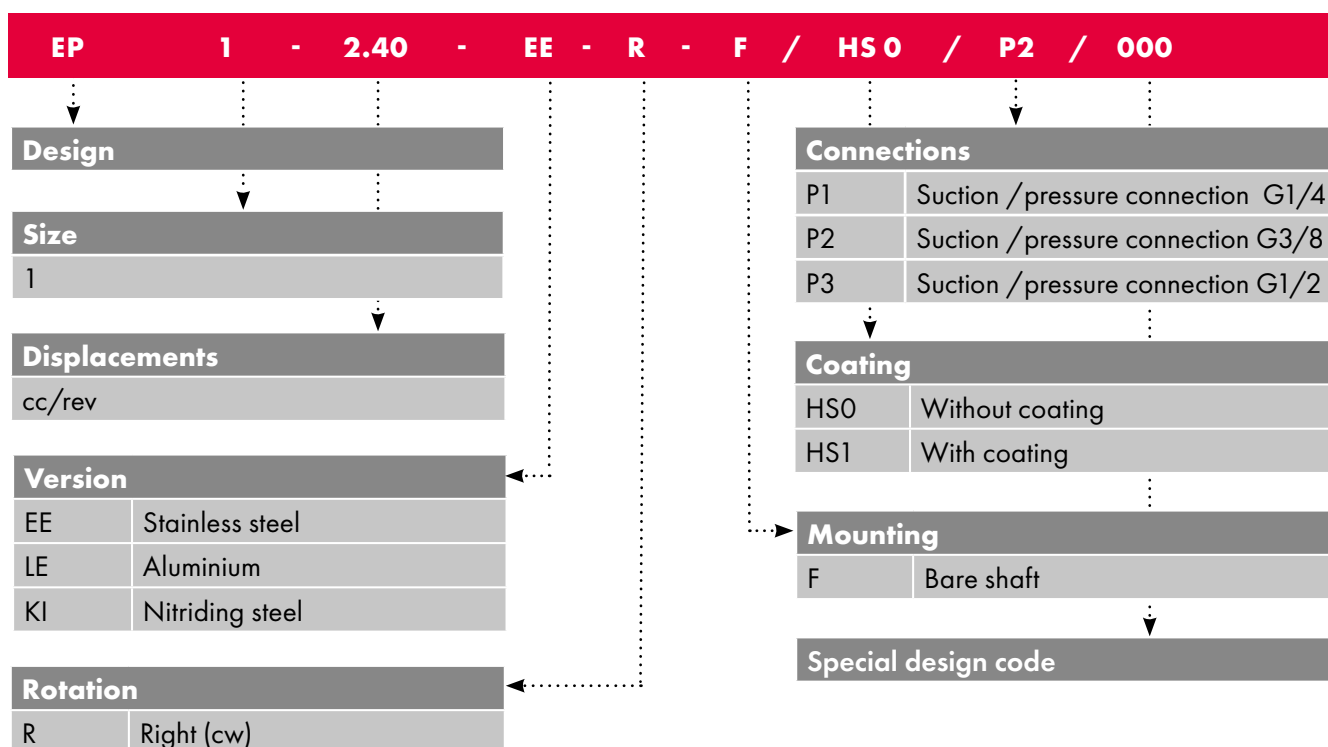
nal view is available for ordering spare parts. We advise explicitly that spare parts and accessories that are not supplied by us are not checked and approved by us. Therefore, the installation and/or use of such products may negatively impact the constructively specified characteristics of the pump and affect the active and/or passive safety.

We are not liable for or provide warranty services for damages resulting from the use of spare parts and accessories other than original spare parts and accessories.

12. RELATED DOCUMENTS

All related documents is included in the technical specifications or the order confirmation.

13. MODEL CODE



14. CERTIFICATE OF NON-OBJECTION



SAFETY DECLARATION (CERTIFICATE OF NON-OBJECTION)

Last revised: 04/2023

Please reply to reparaturen@beinlich-pumps.com

Pumps for which this safety certificate has not been completed and signed can neither be inspected nor repaired for safety reasons and will be returned unchecked at your expense.

Part no.		Serial no.	
Pump type			
Reason for return			
Pumped medium		Manufacturer	
Cleaning medium		Manufacturer	
Safety data sheet for the cleaning medium	<input type="radio"/> Yes*	<input type="radio"/> No	CAS no. <input type="text"/>
Safety data sheet for the pumped medium	<input type="radio"/> Yes*	<input type="radio"/> No	CAS no. <input type="text"/>

*if positive, please enclose as an attachment

The pump was used in media which are hazardous to health/environment.	<input type="radio"/> No	<input type="radio"/> Yes
The pump was carefully emptied before dispatch and cleaned inside and outside.	<input type="radio"/> No	<input type="radio"/> Yes
Special safety measures or treatment is necessary or expected.	<input type="radio"/> No	<input type="radio"/> Yes

The pump, including accessories were last used with the following media:

If yes, which

Solvents	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>
Toxic liquids	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>
Biologically active liquids	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>
Radioactive liquids	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>
Corrosive liquids	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>
Alkali	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>
Explosive liquids	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>
Other media	<input type="radio"/> No	<input type="radio"/> Yes	<input type="text"/>

SAFETY DECLARATION (CERTIFICATE OF NON-OBJECTION)

Please reply to reparaturen@beinlich-pumps.com

The undersigned assures that the above information is correct and complete and the shipping is carried out according to legal regulations. The undersigned is liable for all damages which arise as a result of the non-marked decontamination of the returned pump.

Beinlich expressly points out that repairs and verification work is carried out by trusting the correctness of the completion of this safety declaration (certificate of non-objection). Should physical injuries, death or even damage to property occur, claims for damages will be asserted.

Company	
Street / Building no.	
Postcode / Town	
Phone	
Fax	
Email	

Contact
(in capitals)

Date

Signature
(company stamp)

Enclosed

beinlich.*pump*
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